

The story of the meteorological Observations of Jean Barthe, Physician on the French Frigate *La Sibylle*, and of Father Furet, apostolic missionary in Okinawa*

by

Gaston R. DEMARÉE**, Patrick BEILLEVAIRE***, Togo TSUKAHARA****, Takehiko MIKAMI*****, Masumi ZAIKI***** & Yoshio TAGAMI*****

ABSTRACT - The mid-1850s were a particularly interesting period from the point of view of instrumental meteorological observations on a global scale. The first international conference for devising an uniform system of meteorological observations at sea, held in Brussels in 1853 under the chairmanship of Adolphe Quetelet, provided a standard for performing meteorological observations at sea.

Father Louis Théodore Furet, an apostolic missionary, carried out instrumental observations at Naha [Naha, Okinawa] on the *Ryûkyû Islands*. A set of the meteorological manuscripts by Father Furet was given to Jean Barthe on board of *La Sibylle*¹ who handled them to the *Académie des Sciences* in Paris and to the *Société Météorologique de France*. An abstract of Furet's and of Barthe's meteorological observations was printed in the *Comptes rendus* of the Academy. To present-day Japanese researchers in historical climatology, Furet's meteorological observations were only known under the form of a table as published in the works of *J.J. Rein*.

On the other hand, this paper deals with the meteorological observations carried out by the physician Jean Barthe on board of the French frigate *La Sibylle* which took part in of the Anglo-French naval operations of the Pacific theatre during the Crimean War (October 1853 – February 1856). At the same time, Japan concluded treaties or conventions of peace and amity with the U.S.A., U.K., Russia and The Netherlands, prompted by the action of U.S. Commodore Matthew Perry in 1853 and 1854. The French warships were allowed at the port of Hakodate, in Hokkaido, and members of the crew of *La Sibylle* who suffered severely from dysentery and scurvy received medical aid and food in a Buddhist temple.

A search for the corresponding meteorological manuscripts in France and in the U.S.A. remains forward-looking.

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** Member of the Academy; Royal Meteorological Institute of Belgium, Ringlaan 3, B-1180 Brussels (Belgium). (gaston.demaree@meteo.be)

*** École des hautes études en sciences sociales, Paris, France. (beillev@ehess.fr)

**** Graduate School of Inter-Cultural Studies, Kobe University, Kobe (Japan).

***** Faculty of Liberal Arts, Teikyo University, Tokyo (Japan).

***** Faculty of Economics, Seikei University, Tokyo (Japan).

***** Faculty of Human Development Department, University of Toyama, Toyama (Japan).

¹ In this paper the spelling '*La Sibylle*' has been adopted once for all although in many references the spelling '*La Sibylle*' was also encountered.

1. The political circumstances

The 1850s were an important time frame for the European nations both in Europe and the Far East. In France, the ambitious self-proclaimed French emperor Napoleon III had taken full power in 1852. Convinced of the importance of building a colonial empire, he doubled the area of the French overseas possessions in Asia, the Pacific and Africa. An important factor in his decision was the belief that France risked becoming a second-rate power if it did not expand its influence overseas. Deeper down was the sense that France owed the world a civilizing mission. A key part of the enterprise was the modernization of the French Navy, which then became the second most powerful in the world, after Britain's. In the 1850s Napoleon III notably acted to increase the French presence in Indochina. In 1853, Admiral Febvrier Despointes took formal possession of New Caledonia and Port-de-France (Nouméa) was founded in 1854.

France and England participated jointly in the Pacific Ocean theatre of the Pacific War (see section 1.1). They also both fought China in second Opium War (1856–60). Their victory ensured foreign powers commercial privileges and legal and territorial concessions in China.

1.1 The Crimean War

The *Crimean War*, lasting from October 1853 till February 1856, was a conflict between Russia and an alliance of France, Britain, the Ottoman Empire, and Sardinia-Piedmont. The immediate cause involved Russia's claim to ensure protection of the Orthodox minorities living in Ottoman provinces and the rights of the Roman Catholics to the holy places in the Holy Land. Napoleon III promoted the rights of the Roman Catholics while Russia supported Eastern Orthodoxy. The longer-term causes involved the decline of the Ottoman Empire and the unwillingness of Britain and France to allow Russia to gain territory and power at the Ottoman expense. The war was mainly fought in and around the Crimean peninsula but smaller campaigns took place in eastern Anatolia, the Caucasus, the Danubian Principalities of Moldavia and Wallachia, the Azov Sea, the Baltic Sea, the White Sea, and the Pacific Ocean.

In the Far-East, at Petropavlovsk on Kamchatka Peninsula, a British force including HMS *Pique* under Rear Admiral David Price² and a French force under Counter-Admiral Auguste Febvrier-Despointes³ besieged a smaller Russian force under Rear Admiral Yevfimy Putyatin⁴. In early September 1854, an allied landing force was beaten back with heavy casualties, causing its

² Rear Admiral David Powell Price (1790–1854), a Royal Navy officer, was promoted to Commander-in-Chief of the British naval forces in the Pacific Station in August 1853. During the Petropavlovsk siege, on August 31st, 1854, he was killed by a discharge of his own pistol, either by accident or in a suicide attempt.

³ Auguste Febvrier Despointes (1796-March 5th, 1855). Commander of France's naval division in Oceania and on the West American coast. First French commander of New Caledonia (September 24th, 1853-January 1st, 1854). He took part in the Pacific theatre of the Crimean War, including the siege of Petropavlovsk. He died on board his ship *La Forte* along the Peruvian coast in 1855.

⁴ Admiral Yevfimy Vasilyevich Putyatin (1803–1883) is noted for his diplomatic mission to Japan which resulted in the signing of the Shimoda Treaty in 1855.

withdrawal. The Anglo-French forces in the Far-East also made landings on Sakhalin [Karafuto in Japanese—older name Karafto or Tarakaï] (see: http://www.academia.edu/4141635/Crimean_War_1) and on one of the Kuril Islands, Urup, of which they formally took possession.

At the beginning of 1854, France disposed of two Naval Forces in the Pacific. The first one, named *Division Navale de l'Océan Pacifique*, under the command of Counter-Admiral Febvrier-Despointes, had the mission of taking care of the French interests on the American coast and in the oriental Pacific. The second one, named *Division Navale de la Réunion et de l'Indochine*, was commanded by Counter-Admiral Adolphe Laguerre⁵. Its domain of activity comprised the Red Sea, the Indian Ocean, the Sea of Japan, the Sea of China and the environment of the Sunda Islands. The frigate *La Sibylle*, commanded by Simonet de Maisonneuve, belonged to the latter.

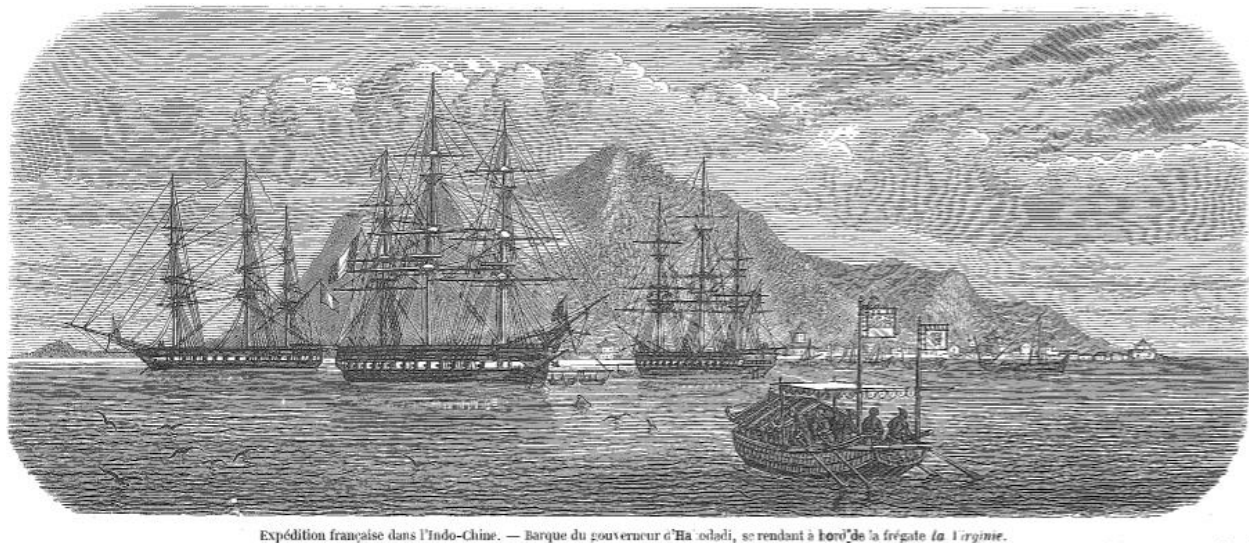


Fig. 1. French expedition in Indo-China – Boat of the governor of Hakodate approaching the French frigate *La Virginie*. (*L'Illustration, Journal universel*, t. XXVII, N° 673, 19 janvier 1856, p. 44)

Another French frigate, *La Forte*, under the commandment of Captain de Miniac (1812-1895), sailed from Brest, crossing Cape Horn, along the South American coast, to Nuku Hiva, Marquesas Islands in French Polynesia, and from there to Honolulu, Hawaii, and Kamchatka where it took part in the allied attack on Petropavlovsk. The travel journal of the designer Jean-René-Maurice de Kerret on board of the *La Forte* provides nearly daily weather information including temperature data.

⁵ Counter-Admiral Adolphe Laguerre (1792-1862), *commandant en Chef la Division Navale de la Réunion et de l'Indochine* (1855).

“August 24th, 1854. In the morning calm, light breeze in the day, wind backwards, easterly winds; fog, one sees the ships, very cold rain. At 3 o’clock in the afternoon the breeze gets cooler from East to East-North-East. At 9 o’clock the rain starts again, the cold increases. One sees a large quantity of birds of different kinds. Estimated latitude 52° 14’, estimated longitude 177° 05’.” (de Kerret, 2004, p. 165)

1.2 Commodore Mathew Perry and the Black Ships

A series of edicts issued in the 1630s by Tokugawa Iemitsu, shōgun of Japan from 1623 to 1651, determined the seclusion of Japan. They stated that (a) the Japanese were no longer permitted to travel abroad, (b) Catholicism was strictly forbidden, (c) trade restrictions and strict limitations on goods were set to limit the access to Japan and the merchants allowed to engage in trade. Relations with the Catholic Portuguese were cut off entirely; Chinese merchants and those of the *Vereenigde Oostindische Compagnie (VOC)* were restricted to enclaves in Nagasaki. Trade also continued to be conducted with China through the semi-independent vassal kingdom of Ryūkyū, a tribute state of China since the 14th century.

In 1844, King William II of The Netherlands urged Japan to open, but his exhortation was rejected. In 1852, Commodore Matthew Calbraith Perry (1794–1858) was assigned a diplomatic mission by U.S. President Millard Fillmore to force the opening of Japanese ports to American trade, through the use of gunboat diplomacy if necessary. The growing commerce between America and China, the presence of American whalers in waters offshore Japan, and the increasing monopolization of potential coaling stations by the British and French in Asia were all contributing factors.

On July 8th, 1853, during his first visit to Japan, Perry entered Edo [Tokyo] Bay. He was allowed to land at Kurihama [Yokosuka] on July 14th. After presenting a letter from U.S. President Millard Fillmore to attending delegates, he promised to return the following year for the Japanese reply. On his second visit to Japan, in February 1854, Perry met with initial resistance by the Japanese, but was eventually permitted to land at Kanagawa, near Yokohama on March 8th. Negotiations soon started and a treaty, thereafter known as the Kanagawa Treaty, was signed on March 31th, 1854. (Yayori Takano, 2010)

2. Father Louis Furet

2.1 Father Louis Furet, missionary

Louis Théodore Furet was born on March 25th, 1816, at Commer, a small village in the French department of Mayenne, near the town of Mayenne. After graduating from the college of

Mayenne, he entered in 1837 at the seminary of Le Mans where he was ordained priest in 1839. From 1845 to 1847, he was in Paris at College Stanislas assisting the classes of physics, chemistry and natural sciences and meanwhile studying mathematics at the Sorbonne. In 1852, he entered the seminary of the *Missions étrangères de Paris*⁶. On April 19th, 1853, he left the seminary for Hong-Kong to be posted as a missionary in Sichuan, China, as was agreed. However, circumstances decided otherwise. Following the action of commodore Matthew Perry and the signature of the Kanagawa Treaty, it was hoped that Japan would open to western residents, the procure of the *Missions étrangères* in China sent Father Furet to the Ryûkyû Islands as an outpost for Japan. He arrived at Naha, the main port of Okinawa, on February 26th, 1855. (Beillevaire, 1999)

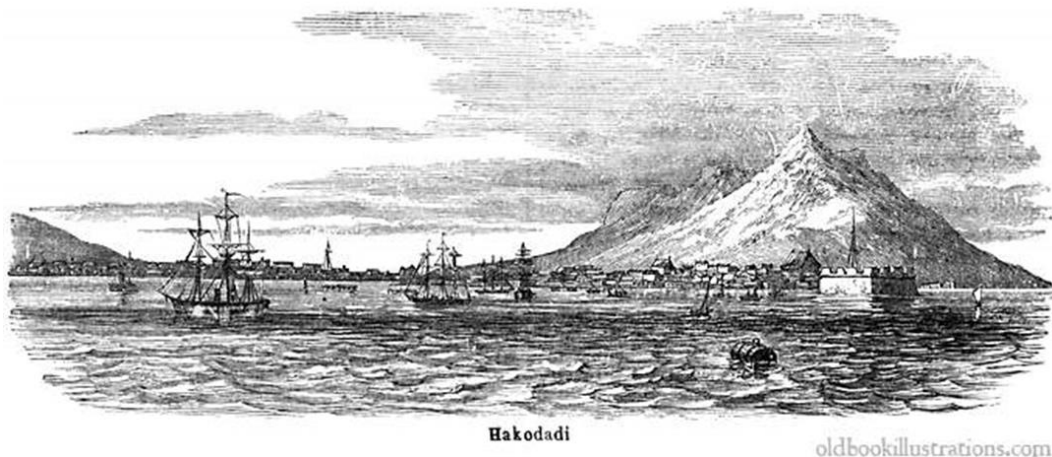


Fig. 2. Hakodadi [Hakodate] from *The American Cyclopaedia* by George Ripley & Charles A. Dana, 1873.

Merely two months later, May 6th, 1855, Father Furet was asked to join the French expedition heading to the north of Japan in the framework of the British-French marine operations in the Pacific theatre of the Crimean War. He accepted this invitation with the secret hope of establishing himself at Hakodate on the island of Ezo [Hokkaido], where already some Westerners were settled, and he embarked on the frigate *La Sibylle* with Louis Alexandre Simonet de Maisonneuve⁷ as captain. Strangely, the two meteorologists of this paper, Father Furet and the marine physician Jean Barthe, found themselves shortly on the same ship, but one finds no mention of an encounter. In Nagasaki, *La Sibylle* met *Le Colbert* and *La Constantine*, commanded by Tardy de Montravel⁸. To his great regret, Father Furet was forced by Tardy de

⁶ The Society of Foreign Missions of Paris (French: *Société des Missions étrangères de Paris*) is a Roman Catholic missionary organization (see D'Hulst, 2013, on the Society of Foreign Missions in Japan).

⁷ Louis Alexandre Amédée Vicomte Simonet de Maisonneuve. Born in November 1809 at Zara, as the son of an officer of the Illyrian Army of Napoleon, *Capitaine de vaisseau* in June 1853, made a long campaign in the Chinese and Japanese Seas, and the Persian Gulf from 1854 to 1857, on the frigate *La Sibylle*. The crew was severely hit by four successive epidemics and its second officer committed suicide. (Taboulet, 1954)

⁸ Louis-Marie-François Tardy de Montravel (1811–1864) was a French admiral, explorer and colonial administrator.

Montravel to leave the squadron and to embark on *Le Syngapore* in direction of Shanghai where he was shortly hosted by the Jesuits. (Beillevaire, 1999)

Tardy de Montravel describes the weather at Nagasaki during the stay of *La Constantine* as follows:

“During our stay in this harbor from the 8th May till May 31st, 1855, the winds have been variable; these from the South to the West were however predominant; the weather was often rainy and foggy.” (Tardy de Montravel, *Annales hydrographiques*, t. 10, p. 260)

In Spring 1855, Counter-Admiral Nicolas François Guérin⁹ decided to organize a second expedition to the north. Father Furet was invited to take part in this travel, the aim of which was to explore the Russian defenses in the Strait of Tartary. Furet embarked again on *La Sibylle* under the command of captain de Maisonneuve, while his fellow missionary Pierre Mounicou (1825-1871) was on the flag-ship *La Virginie*. The expedition arrived at Hakodate on May 20th, 1856, where the missionaries and the officers visited the town. Father Furet tells that Captain de Maisonneuve in discussing with the Japanese got the authorization that the numerous sick could be brought to a large pagoda. The Japanese brought food to them and even a deceased got a burial preceded by a cross and a French chaplain in a liturgical surplice (Beillevaire, 1999; Furet, *Lettres à M. Léon de Rosny*, p. 45).



Fig. 3. Buddhist pagoda at Hakodate. View on the Cemetery (left) and entry of the pagoda (right). (*L'Illustration, Journal universel*, t. XXVII, N° 673, 19 janvier 1856, p. 44)

⁹ Nicolas François Guérin (1796-1877), Counter-Admiral May 12th, 1854, in command of the French *Division Navale de la Réunion et de l'Indochine*.

In their further exploration of the Strait of Tartary, Father Furet mentions a few isolated temperature observations. In the *Baie de Jonquières*, on the north of the west coast of Sakhalin – near the mouth of the River Amour, the mean temperature was 11.7° from June 12th till 14th, 1856, while at the Bay of Barracouta (formerly named by the Russians Bay of Emperor Nicolai) the mean temperature raised from 13.5°, from June 19th till 24th, to 16°, from June 25th till July 26th (Furet, *Lettres à M. Léon de Rosny*, p. 66, 78). The identity of the observer remains unknown: Father Furet, Jean Barthe or a French naval officer. When the expedition was completed, Furet returned on *La Sibylle* to China from where he returned on *La Virginie* to Naha on October 26th, 1856, and where he could finally start his meteorological observations. Father Furet withdrew from Okinawa on October 1862. Thereafter he stayed successively in Nagasaki, from January 1863 to October 1864 and again, after a year spent in France, from June 1866 to June 1867, and in Yokosuka and Yokohama until October 1869. He then left definitively for France. He finally became a parish priest at Chantrigny, and then at Laval in his native department of Mayenne. (Beillevaire, 1999; Beillevaire, 2013)

2.2 Father Louis Furet, meteorologist

According to Furet (1859c), a series of meteorological observations were carried out by Furet near Nafa [Naha], on Okinawa Island, during the 22 months from December 1856 through September 1858. Charles Sainte-Claire Deville¹⁰ communicated these meteorological observations to the French *Académie des Sciences* in its session of February 21st, 1859. The major part of the documents had been transmitted to Sainte-Claire Deville by the handy and zealous physician of *La Sibylle*, Dr. Barthe.

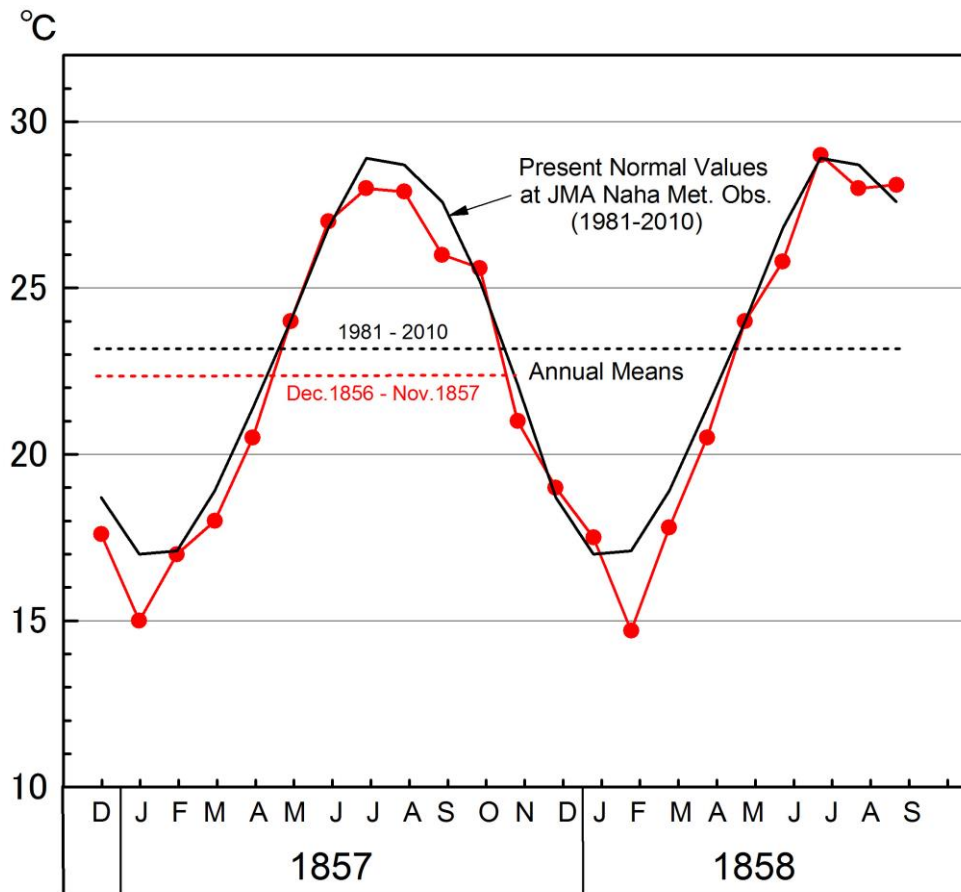
Father Furet had been instructed by Sainte-Claire Deville how to carry out meteorological observations. He observed 5 times a day: at 6 and at 10 hours in the morning, at 1, 4 and 10 hours in the afternoon and the evening at local mean time. His observations covered the atmospheric pressure, the air temperature, and its hydrometric condition measured with a dry- and wet bulb thermometer. In his tables, moreover, one finds indications on the state of the sky, the strength and direction of the wind, the amount and nature of the clouds, and, finally, information on extraordinary phenomena such as typhoons and earthquakes. During earthquakes, he mentions the detailed meteorological conditions and the state of the sky.

The monthly means of the meteorological observations carried out at Nafa by Father Furet for the period extending from December 1856 to September 1858 appeared in several publications (Furet, 1859c, p. 393-396; Furet, 1859d; Furet, 1860b, p. 153-154; Jelinek and Hann, 1872; Rein, 1881, p. 146-147; Rein, 1884, p. 128-129; Rein, 1998, p. 128-129). The *Société Météorologique*

¹⁰ Charles Sainte-Claire Deville. Born 1814, on St. Thomas, Virgin Islands; died 1876, in Paris. French geologist and meteorologist. Member of the *Académie des Sciences* (1857). Professor at the *Collège de France* (1875).

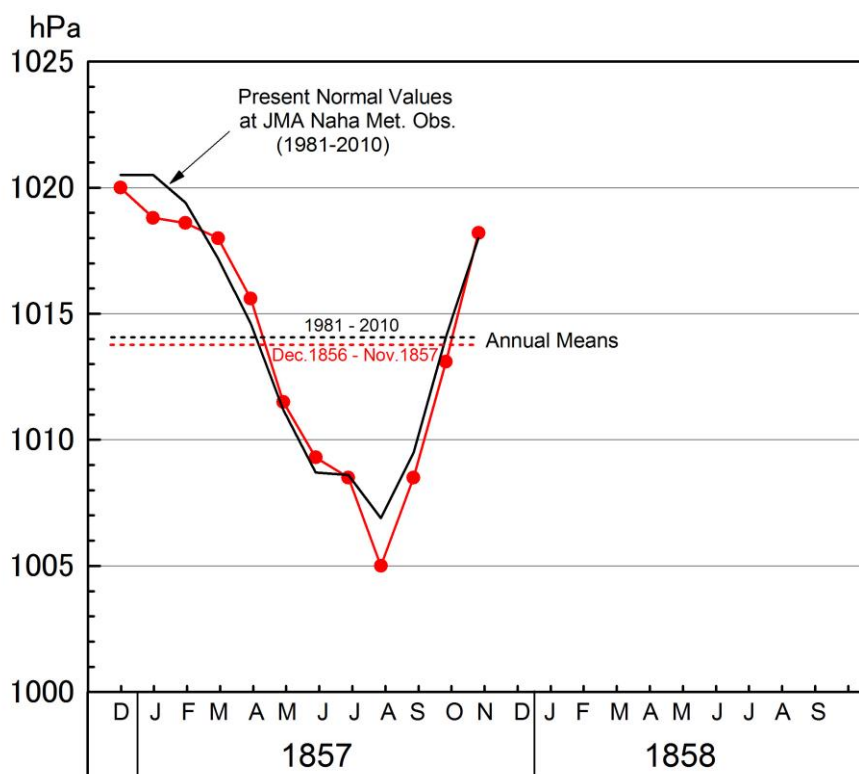
de France mentions in its correspondence that it has received observations carried out from 1857 till 1860 at the Lioutchou (Liou-Kiou) islands from Father Furet (*Annuaire de la Société Météorologique de France*, 1861).

Fig. 4. Monthly air temperature means (in °C) from December 1856–to September 1858 by Father Furet at Naha, Okinawa.



Fluctuations of mean monthly temperature means (in °C) at Naha from December 1856 to September 1858 (red) after Father Furet's observations in comparison with recent monthly temperature variation at Naha in the 1981-2010 period (black). Horizontal dashed lines show corresponding temperature mean of December 1856-November 1857 observations by Father Furet (red) and annual temperature mean of the Japan Meteorological Agency 1981-2010 data (black).

Fig. 5. Monthly Sea Level Pressure data (in hPa) by Father Furet at Naha, Okinawa.



Fluctuations of mean monthly Sea Level Pressure data (in hPa) at Naha after Father Furet's observations (red) in comparison with recent mean monthly Sea Level Pressure variation at Naha in the 1981-2010 period (black). Horizontal dashed lines show the mean of December 1856-November 1857 observations by Father Furet (red) and the corresponding annual mean of the Japan Meteorological Agency 1981-2010 data (black).

Lowest temperature observation: 9.1 °C on February 23rd, 1858; highest temperature observation: 33.7 °C on July 17th, 1858.

The instruments used by Father Furet were remitted by the *Dépôt de la Marine*, where they were carefully gauged by the A. Delamarche¹¹. Nearly all of the mean monthly temperature observations by Father Furet in the period December 1856 to September 1858 are lower than the present day monthly means of the Japan Meteorological Agency (1981-2010) data. This is probably due to the present global warming and the urban heat island phenomena.

¹¹ Alexandre Delamarche (1815-1884) Former student at the *Ecole Polytechnique*, *Ingénieur* hydrographer and cartographer of the French Imperial Marine. He participated as meteorologist on board the frigate *Erigone* to the campaign in the Sea of India and China in 1841-1844. He represented France at the 1853 Brussels First International Maritime Conference Held for Devising an Uniform System of Meteorological Observations at Sea.

Lowest atmospheric pressure observation: 721.4 mm Hg (= 961.25 hPa) on May 18th, 1857;
highest atmospheric pressure observation: 773.1 mm Hg (= 1030.6 hPa) on December 31st, 1857.

During these 22 months only one typhoon occurred, on May 18th, 1857. Furet's barometric observations were stopped as the Buntan siphon barometer was broken during his absence from Okinawa, from May 1855 through October 1856. As for air pressure observations, both data (Dec.1856-Nov.1857 and JMA 1981-2010 means) show good agreement. Therefore Furet's data would be reliable and reasonable.

Father Furet was elected honorary member of the *Société impériale zoologique d'acclimatation* at the session of March 16th, 1855 (*Bulletin de la Société ...*, 1855, p. 228). The *Société* asked M. Barran, superior of the *Missions étrangères* at Paris, and contacted Father Libois, procurator of the *Missions étrangères* at Hong-Kong, to get the missionaries present in China to become involved into a research question on wild silkworms of China (*Bulletin de la Société ...*, Tome I, p. 95, 97, 121, 226). Father Julien Bertrand (1803-1865) reported on this question (see *Bulletin de la Société ...*, tome 5, p. 272). Furet wrote from Nafa on November 10th, 1857, to inform the society about the sending of grains of the tallow tree and of four tallow candles. In 1869, Father Furet, now labeled as missionary at Osaka [though he never went there!], sent grains of the marble-leaved *Ipomea*, as well as three Japanese plants brought from his residence to the society and expresses his offer for further cooperation. The society thanked him in return (see *Bulletin de la Société ...*, 2^e série, tome VI, 1869, p. 50, p. 715).

2.3 Father Louis Furet and John M. Brooke

John Mercer Brooke (1826-1906) was a United States Navy officer, scientist and inventor. He invented the first deep-sea sounding apparatus (1853-1854). He worked with Commander Matthew Fontaine Maury¹² at the United States Naval Observatory (USNO) from 1851 to 1853. During the 1850s and up to 1861 Brooke was deeply involved in United States Naval activities in the Pacific region. He participated on the *Fenimore Cooper* (98 tons) in the North Pacific Surveying Expedition under Ringgold and Rogers (1853-1856). This voyage included stops in Okinawa and Japan in late 1854 and early 1855. In late 1858 Brooke commanded the *Fenimore Cooper* on a voyage to survey a route from San Francisco to Hong Kong. He arrived in Hong Kong in May of 1859. The return trip followed a route via Okinawa and Japan. While the boat was in Yokohama and Brooke had gone to Tokyo, a storm came up and washed the *Fenimore Cooper* on shore. Brooke was reassigned to duty as a technical advisor aboard the Japanese steamer *Kanrin Maru* during that ship's voyage to the United States, in conjunction with the Japanese commissioners who were traveling separately on the *Powhatan* in February 1860.

¹² Matthew Fontaine Maury (1806–1873), United States Navy, was an American astronomer, historian, oceanographer, meteorologist, cartographer, author, geologist, and educator. He was the leading spirit of the pioneer scientific conference when it met in Brussels in 1853 under the presidency of Adolphe Quetelet (1796-1874), Director of the Royal Observatory of Brussels.

While the American Squadron under Commodore Perry was flexing American naval power to open Japan to Western trade, scientists like Brooke were quietly and methodically performing the technical oceanographic surveying, charting and research that would be critical to support that maritime trade. In 1861 Brooke resigned his US Navy commission and soon thereafter took a commission in the confederate Virginia Navy (Brooke, 1980).

The journal of John Mercer Brooke (1986) contains several interactions with the missionaries of the *Missions étrangères de Paris* in the Far-East.

“Leaving Hong Kong on June 29th, 1859, for Loo Choo [English spelling for Ryûkyû Islands] they had on board four large boxes from Fathers Mermet and Girard of Hong Kong, for Fathers Furet & Fleury now missionaries at Loo Choo.

8 July 1859, at Loo Choo. After dinner Mr. Kern and I went over to Napa [Naha, Okinawa] to call upon the French priests. [...] Father [?] who is now here makes meteorological observations but his barometer ... fell down and was broken. He continues his thermometrical observations, however ... I heard from them that in 1858 severe shocks of earthquakes were experienced in Loo Choo. The fathers promised to make up some short account of the phenomena for me before our departure. They said the Loo Chooans were not alarmed as they are accustomed to earthquakes. There was no damage done and they knew nothing of any rising of the waters or sea wave. There was nothing unusual in the weather. During the past year, 1858, there were no typhoons.

11 July 1859, at Loo Choo. The fathers gave me a copy of their register of earthquakes during the years 58 & 59.

12 July 1859, at Loo Choo. The fathers sent me some valuable records of temperature.” (John M. Brooke’s Pacific Cruise and Japanese Adventure, 1858-1860, p. 93, 107, 110)

The meteorological observations by Furet handed to John M. Brooke may have been helpful to the establishment of a map published by the United States Navy Hydrographic Office in 1875. (John M. Brooke’s Pacific Cruise and Japanese Adventure, 1858-1860, p. 13)

Unfortunately, Furet’s records are not included in the ‘John M. Brooke Papers, 1859-1898’, Collection Number: 03208-z, of the Southern Historical Collection at the Wilson Library, University of North Carolina.

3. Jean Barthe, physician on *La Sibylle*

3.1 Jean Barthe

Jean Barthe was born on August 9th, 1814, at Agen, 47000, Lot-et-Garonne, France and died at Tamaris, a suburb of Alès, Gard, on August 18th, 1866. He first studied at the veterinary school of Toulouse, from where he went to the Faculty of Medicine at Montpellier where he wrote a

thesis, *De la colique sèche*, in 1852. Barthe started a career in naval medicine at Toulon. His first mission on *La Mésange* brought him to Sénégal. Jean Barthe is listed as Navy surgeon having stayed in Gabon in 1843-1845 (see Milleliri). Another mission took him to the Pacific on the steam sloop *Le Cocyte*. Barthe published a short contribution to pathology of the Tonga (Barthe, 1866). The third of his campaigns was on *La Sibylle*. His meteorological observations on board of this ship are discussed below. It is possible that Jean Barthe also participated in the French expeditionary forces dispatched to Lebanon in 1860–1861 to stop the massacre of Christians. Jean Barthe, Navy surgeon at Toulon, Var, is listed as admitted member of the *Société impériale zoologique d'acclimatation* among the members newly admitted between March 13th, 1857 and April 23rd, 1858.

The long, arduous voyages, often under difficult climatic conditions, and the hard work of marine surgeon damaged Jean Barthe's health and compelled him in 1865-1866 to go out of service and to occupy the position of physician at the coal mining company of Alès, Gard. Jean Barthe was *médecin de la Marine 1^{re} classe* and *Chevalier de la Légion d'Honneur* (Berger and Rey, 1874, p. 12; Pellegrin, 1866). His wife, Julie Sandfort, received a widow's pension amounting to 975 francs by decree of February 20th, 1867. (*Archives de médecine navale*, tome 5)

3.2 The French frigate *La Sibylle*

As mentioned before, the French frigate *La Sibylle* took part in the Anglo-French action conducted in the Far-East during the Crimean War. While on board, the physician Jean Barthe had the opportunity to carry out meteorological observations. *La Sibylle* was a 50-gun type frigate, belonging to the *Poursuivante* class, launched on November 7th, 1847, at Toulon, put into service in March or April 1851 and deleted May 13th, 1881. On February 1st, 1874, *La Sibylle* was in charge of the eighth convoy of deportees¹³ of the *Commune* to New Caledonia, but the travel ended prematurely in Arzew, Algeria.

La Sibylle departed from Brest, France, in March-April 1854. She dropped anchor at La Réunion in September 1854, and she will reach the coast of China no earlier than spring 1855. The crew has been decimated by an epidemic of dysentery during the passage between La Réunion and China. Following the instructions of Admiral Laguerre, the French naval forces were bound to concentrate in Nagasaki. *La Sibylle* arrived there on May 20th, 1855, after having completed its crew with Chinese nearly failed to be grounded on the Gotō islands¹⁴. Commandant Tardy de Montravel finally left Nagasaki on May 31st, 1855, with the corvette *La Constantine* and the frigate *La Sibylle*. They met with the English 1st class sloop *Styx* at Hakodate, Hokkaido, and

¹³ 'communards'

¹⁴ The Japanese islands of Gotō are located in the East China Sea, off the western coast of Kyūshū. They are part of Nagasaki Prefecture.

were informed on the meeting point with the British left by Admiral Stirling. The meeting was fixed at cape Crillon (or cape Notoro) at the west of the Aniwa bay, on the extreme south of Sakhalin. The two French ships followed the east coast of Hokkaido. Taken by the fog while they followed the east coast of Hokkaidô, the two French ships could not cross the Kuril Islands before June 28th, but they eventually managed to reach the meeting point with the English at the extreme south of the island of Sakhalin. Yet, the crew of *La Sibylle* is overrun since two weeks by an epidemics of scurvy which took such proportions that the vessel was ordered to return to Nagasaki to take rest (Erulin,1933-1934).

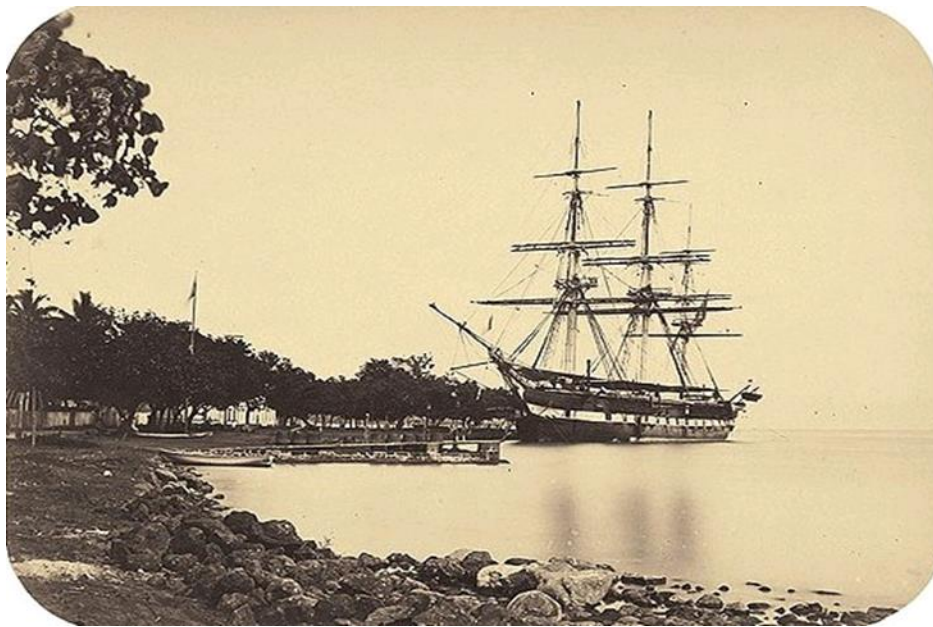


Fig. 6. The frigate *La Sibylle*, in Polynesia, in 1869-1870 (courtesy : <http://www.bernard-guinard.com/articles%20divers/Convois%20de%20deportes/Alceste/l'Alceste.html>).

3.3 Meteorological, botanical, zoological and medical observations made by Jean Barthe

In September 1855, during the Anglo-French campaign in the Crimean War, the French frigate *La Sibylle* came to anchor before the village Tabano on Urup, one of the Kuril Islands, an anchoring place used by the ships of the Russian-American Company (RAC). During that halt, the measurements showed a very mild temperature with a daily average of 16°. (*Archives de médecine navale*, tome 5, 1866)

Barthe opened a record of weather observations on January 1st, 1855, and continued until September 12th, 1857. Its columns contain the date, the position of the ship at noon, barometric pressure at different times of the day, the air temperature, the state of the sky, force and direction

of the winds, clouds, rain and other special events, the strength and direction of currents, temperature of the sea. In several ports like at Singapore, in the Ryûkyû Islands, the Tartary Channel, Japan, and the Kuril Islands, Barthe noted the temperature of the soil, of the well water and of the rivers.

The lowest barometric pressure corresponded to a terrible typhoon occurring on the night of August 13 to 14, 1856, near the Zhoushan Islands by 26° N and 118° E. The barometer accused 739.6 mm on the good side of the typhoon, where *La Sibylle* stood. Later Barthe learned in Hong Kong that the pressure had dropped to 727 mm Hg [= 969.25 hPa] on the bad side. The previous days the average was 754.6 mm Hg [= 1006.05 hPa]. The largest diurnal oscillation was observed on September 8th, 1855 in the Kuril Islands: it amounted to 8 mm Hg [= 10.67 hPa].

Achille Valenciennes¹⁵ presented a note at to the *Académie des Sciences* on the collection of 120 shells acquired at different places where *La Sibylle* had called in. Jean Barthe donated the shells to the *Muséum national d'histoire naturelle (MNHN)*. A further note in the *Comptes rendus de l'Académie des sciences* deals with the medical observations during the campaign of that frigate. A very heavy toll had been paid as during the 43 months of the campaign as a total number of 48,788 sick days and 123 of deaths was registered. (Barthe, 1858a, 1858b, 1859; Cosmos, 1858, 1859; Valenciennes, 1858; Kantor and Sysoev, 2002)

The monocot or monocotyledon plant *Globba barthei* Gagnep is named after Jean Barthe. The specimen was collected by Barthe in 1857 at Manila, Philippine Islands. (Gagnepain¹⁶, 1901; <http://tropicos.org/Name/34500589?projectid=1>)

Conclusions

The meteorological observations carried out by Father Louis Furet, a French missionary, and by Jean Barthe, a French Navy surgeon, are in the line of application of the 1853 Brussels Conference on meteorological observations at sea. Both observers have been instructed by Alexandre Delamarche, a French hydrographical engineer, who had participated in the Brussels Conference. As both initiatives belong to the early instrumental meteorological observations in the Far East, the data sets are important in terms of climate history and would produce a valuable complement to the Japanese and European meteorological sources (Demarée *et al.*, Zaiki, 2004) in that time frame. Therefore, efforts will mainly concentrate on recovering the original data sets.

Acknowledgements

¹⁵ Achille Valenciennes (1794-1865) was a French zoologist specialist in fishes.

¹⁶ François Gagnepain (1866 – 1952) was a French botanist. The standard botanical author abbreviation *Gagnep* is applied to plants described by Gagnepain.

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